

June 8, 2026

Mr. David Russell, PE
 City of Lewisville – Engineering Division
 151 W. Church Street
 Lewisville, TX 75057

RE: CP Midway/121 Phase II Wastewater Capacity Analysis

Dear Mr. Russell:

The CP Midway/121 Phase II is a proposed 265-unit multifamily development located between SH 121 Business and Midway Road, approximately 1000’ east of Holfords Prairie Road. The purpose of this report is to analyze the 15" sanitary sewer main located in Midway Road from the intersection with Holfords Prairie Road to the proposed sewer connection of the development, to determine if capacity is available for the 265-unit multifamily development, as well as to analyze a fully developed basin based upon current zoning of the sewer basin.

Exhibit B shows the wastewater basin studied in this analysis including all existing developments, future entitled developments, and the CP Midway Phase 2 proposed development that flow to the existing 15” sanitary sewer line in Midway.

Existing Conditions

Table 1 lists each development and wastewater demand flowing to the existing sewer main matching all assumptions and land uses as the Wastewater Analysis performed by McAdams dated April 8, 2024. All population and loading calculations are based on the City of Dallas DWU Water and Wastewater design criteria.

Table 1 - Existing Contributing Flows												
Development	Land Use	DWU Classification	Lots/ Dwelling Units/Sq. Ft.	Population Per Unit	Population Served	Load (gpcd)	Average Flow (gpm)	Average Flow (cfs)	Peaking Factor (M)	Peak Flow (gpm)	Peak Flow (cfs)	Peak Flow (MGD)
CP Midway/121 Ph. 2	Industrial	LI (Light Industrial)	102,827	1/400 SF	258	25	4.48	0.010	4	17.92	0.04	0.03
CP Midway/121 Ph. 1	PD-MU (Multifamily)	MF-1(A) (Mutlifamily Units)	251	2.5	628	125	54.51	0.121	4	218.06	0.49	0.31
Aura Castle Hills Ph. 2	MF3 (Mutlifamily)	MF-1(A) (Mutlifamily Units)	276	2.5	690	125	59.90	0.133	4	239.58	0.53	0.35
Aura Castle Hills Ph. 1 & 3	PD-MU (Multifamily)	MF-1(A) (Mutlifamily Units)	600	2.5	1500	125	130.21	0.290	4	520.83	1.16	0.75
RaceTrac	LC (Local Commercial)	MC-1 (Multiple Commercial, SF)	5928	1/400 sf	15	18	0.19	0.000	4	0.75	0.002	0.00
Aura Castl Hills Ph.2	PD-MU (Multifamily)	MF-1(A) (Mutlifamily Units)	300	2.5	750	125	65.10	0.145	4	260.42	0.580	0.38
First Park 121 Block A, Lot 6	Industrial	LI (Light Industrial)	433,865	1/400 SF	1085	25	18.84	0.042	4	75.35	0.17	0.11
First Park 121 Block A, Lot 1A	Industrial	LI (Light Industrial)	220,480	1/400 SF	552	25	9.58	0.021	4	38.33	0.085	0.06
First Park 121 Block A, Lot 2	Industrial	LI (Light Industrial)	124,800	1/400 SF	312	25	5.42	0.012	4	21.67	0.048	0.03
First Park 121 Block A, Lot 4	Industrial	LI (Light Industrial)	249,093	1/400 SF	623	25	10.82	0.024	4	43.26	0.096	0.06
Fire Station 6	PU (Public Use)	CS (Community Service, SF)	10,878	1/400 SF	28	25	0.49	0.001	4	1.94	0.004	0.00
TOTAL EX.							359.53	0.80		1438.1	3.20	2.07

To match the intent of the McAdams Wastewater Analysis, Table 3 shows all future development accounted for in the analysis to the 15" sewer.

Table 3 - Previously Proposed Future Flows												
Development	Land Use	DWU Classification	Lots/ Dwelling Units/Sq. Ft.	Population Per Unit	Population Served	Load (gpcd)	Average Flow (gpm)	Average Flow (cfs)	Peaking Factor (M)	Peak Flow (gpm)	Peak Flow (cfs)	Peak Flow (MGD)
Crown Center Multifamily	PD-MU (Multifamily)	MF-1(A) (Mutlifamily Units)	300	2.5	750	125	65.10	0.145	4	260.42	0.58	0.38
Crown Center Commercial/Office	PD-MU (Commercial/Office)	MU-1 (Mixed Use, SF)	1,211,648	1/400 SF	3030	25	52.60	0.117	4	210.42	0.47	0.30
Crown Center Hotel	PD-MU (Hotel)	(Hotel/Motel, Per Bed)	250	2 per Bed per Unit	500	75	26.04	0.058	4	104.17	0.23	0.15
Crown Center Retail	PD-MU (Commercial/Office)	MU-1 (Mixed Use, SF)	624,000	1/400 SF	1560	25	27.08	0.060	4	108.33	0.24	0.16
Crown Center Retail	PD-MU (Commercial/Office)	MU-1 (Mixed Use, SF)	89,964	1/400 SF	225	25	3.91	0.009	4	15.63	0.03	0.02
TOTAL FUTURE							174.74	0.39		698.96	1.56	1.01

Matching McAdams Wastewater Analysis, we find a total flow of 4.76 cfs for the existing developments, future Crown Center development, and assuming a light industrial use of the CP Midway Phase 2 subject site, giving a total peak flow of 4.76 cfs.

Proposed Conditions

The estimated peak flow from the proposed CP Midway/121 Ph. 2 development is based on the City of Dallas DWU Water and Wastewater design criteria and a peaking factor of 4. Table 1 shows the future contributing flow of the 265-unit development. This sewer analysis changes the previously assumed industrial land use for the subject site to a multifamily use, accounting for the 265 proposed units.

Table 2 - Future Contributing Flows												
Development	Land Use	DWU Classification	Lots/ Dwelling Units/Ac.	Population Per Unit	Population Served	Load (gpcd)	Average Flow (gpm)	Average Flow (cfs)	Peaking Factor (M)	Peak Flow (gpm)	Peak Flow (cfs)	Peak Flow (MGD)
CP Midway/121 Ph. 2	PD-MU (Multifamily)	MF-1(A) (Mutlifamily Units)	265	2.5	663	125	57.55	0.13	4.00	230.21	0.51	0.33

Peak wet flow was also studied, utilizing an infiltration rate of 650 gallons per acre of the sewer basin, adding an additional 0.07 cfs to the total flow of the entire developed basin.

Table 6 - Infiltration Flow				
Drainage Basin Acres	Load (GPAD)	Infiltration Flow (GPD)	Infiltration Flow (gpm)	Infiltration Flow (cfs)
70	650	45500	31.60	0.07

Table 4 summarizes the total peak flow of the studies basin.



Table 4 - Total Flow Summary			
	Peak Flow (gpm)	Peak Flow (cfs)	Peak Flow (MGD)
Current Existing Flow	1438.1	3.20	2.07
Proposed Flow (Midway Ph. 2)	230.21	0.51	0.33
Previously Proposed Flow	698.96	1.56	1.01
Infiltration Flow	31.60	0.07	0.05
Total	2380.96	5.31	3.43

Capacity of Existing 15” Sanitary Sewer

This analysis demonstrates a discrepancy between the Wastewater Analysis by McAdams and the sanitary sewer line built in Midway Road according to the Midway Road Sewer Improvement plans by McAdams Engineering dated May 8, 2024.

The wastewater analysis concludes that a 15” pipe on 0.35% slope is sufficient for a peak future flow of 4.76 cfs. Using a Manning’s n of 0.01, and the built slope of 0.25% from the record drawings, we find that this existing 15” line has a capacity of 4.20 cfs (Ref. Exhibit C). Today, 3.20 cfs is entering that line, leaving only 1.0 cfs available for the future development planned for the Crown Center Development and the Midway Phase 2 development.

Table 5 - Existing 15” Pipe Capacity						
Pipe Size (Inches)	Area (ft^2)	Perimeter (ft)	Pipe Slope (%)	Pipe Capacity (MGD)	Pipe Capacity (gpm)	Pipe Capacity (cfs)
15	1.23	3.93	0.25%	2.71	1884.58	4.20

The full pipe capacity is shown to be 4.20 cfs. The total flow from Table 4, including the existing, proposed, and infiltration flows, shows a total peak flow of 5.31 cfs.

Conclusion

Exhibit A shows the existing 15" sewer main being analyzed in this study with a hydraulic grade for the existing and entitled flow, creating <0.5’ surcharge for 1000 linear feet in this condition. Exhibit A also shows a hydraulic grade for all existing, future, and CP Midway Ph. 2 development, creating <1’ surcharge.

Because the existing line was built flatter than assumed in the wastewater analysis, there is less capacity than planned for by McAdams Wastewater Analysis. However, because the 15” line was planned and built with the intention of conveying future development flows for the sewer basin shown in Exhibit B, we propose an allowance of surcharge in the 15” sewer line to allow the overall basin to develop with the currently zoned uses.

Regards,
Spiars Engineering, Inc.

Jackie Fuller



Jackie Fuller, PE



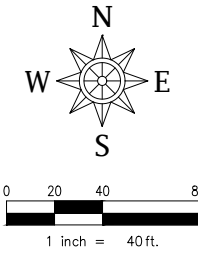
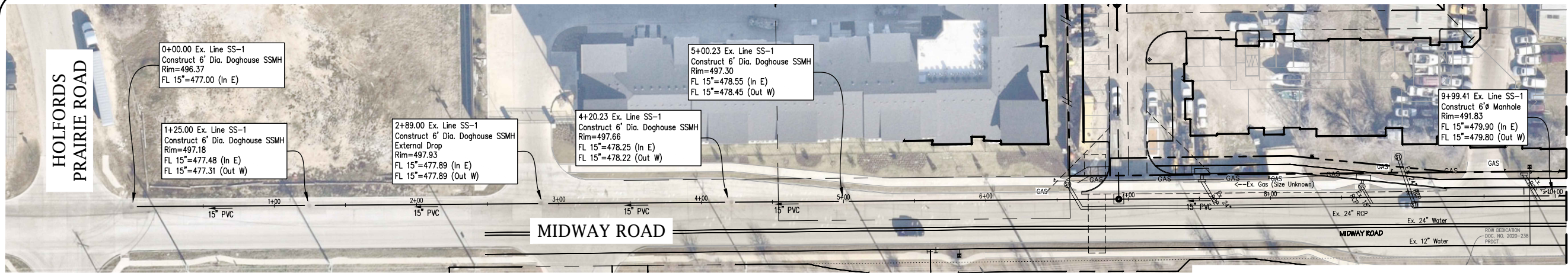
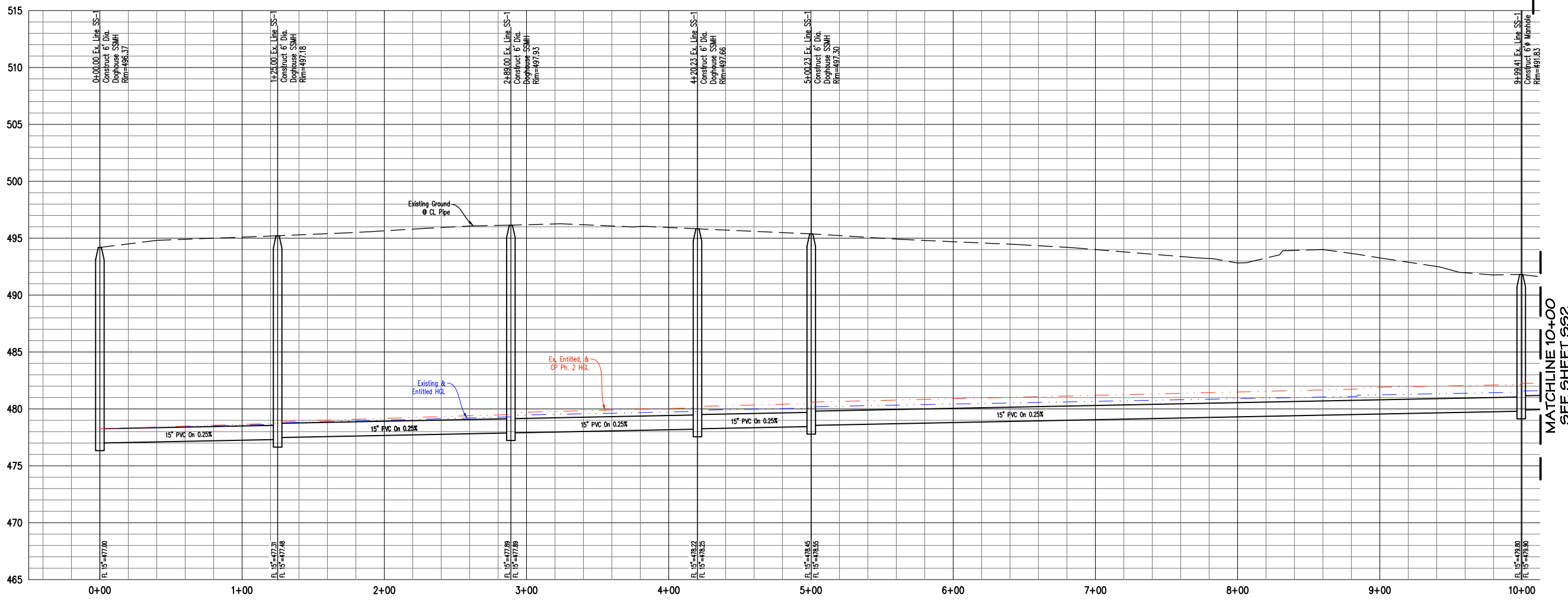


EXHIBIT 'A'



**CAUTION !!!
EXISTING UTILITIES**

Existing utilities and underground facilities indicated on these plans have been located from reference information. It shall be the responsibility of the contractor to verify both horizontally and vertically the location of all existing utilities and underground facilities prior to construction, to take necessary precautions in order to protect all facilities encountered, the contractor shall preserve and protect all existing utilities from damage during construction.

Call Texas one-call (811) or other utility location services 48 hours prior to construction activity. Spiars Engineering, Inc. is not responsible for knowing all existing utilities or depicting exact locations of utilities on drawings.

Note:
The contractor shall perform all earthwork and compaction operations, including but not limited to, placement of fill during earthwork operations, backfilling, trench backfilling, utility backfilling, liming, and subgrade placement according to the geotechnical recommendations and city standards. The contractor shall use the most stringent requirement if there is a conflict on any fill or backfill operations. The contractor shall inquire in written format with the engineer of record should there be any questions regarding fill and backfill requirements.

LEGEND
—○— Existing Waste Water & Manhole

REV NO.	DATE	DESCRIPTION	BY
EXISTING SANITARY SEWER EXHIBIT			
CP MIDWAY/121-2 MULTIFAMILY LOT 1, BLOCK A 7.082 ACRES, ZONED: LI 1942 S.H. 121, CITY OF LEWISVILLE, TEXAS 75056			
DEVELOPED BY:	CHAPARRAL PARTNERS, LP	ARCHITECT:	HEDK ARCHITECTS 4595 EXCEL PARKWAY ADDISON, TX 75001 PH: (214) 520-8870
PREPARED BY:	SPIARS ENGINEERING INC. 501 W. PRESIDENT GEORGE BUSH HWY., SUITE 200 RICHARDSON, TEXAS 75080 (972) 722-0077 TBPE REGISTRATION NO. F-2121 TBPLS REGISTRATION NO. F-10043100		
DESIGN	DRAWN	DATE	SCALE
DJB	BLM	3/30/26	AS SHOWN
CHECK	FILE	NO.	
DJB	25-355	551	

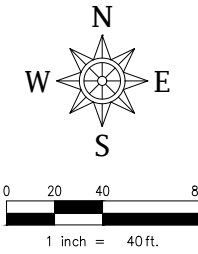
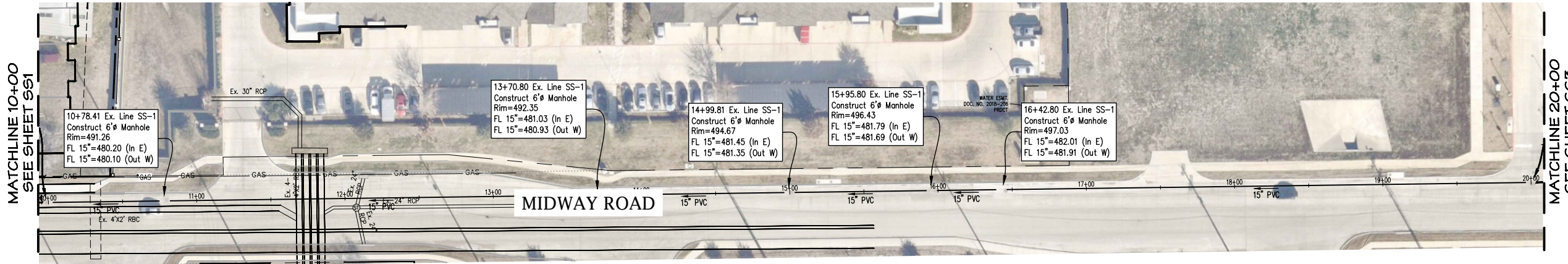
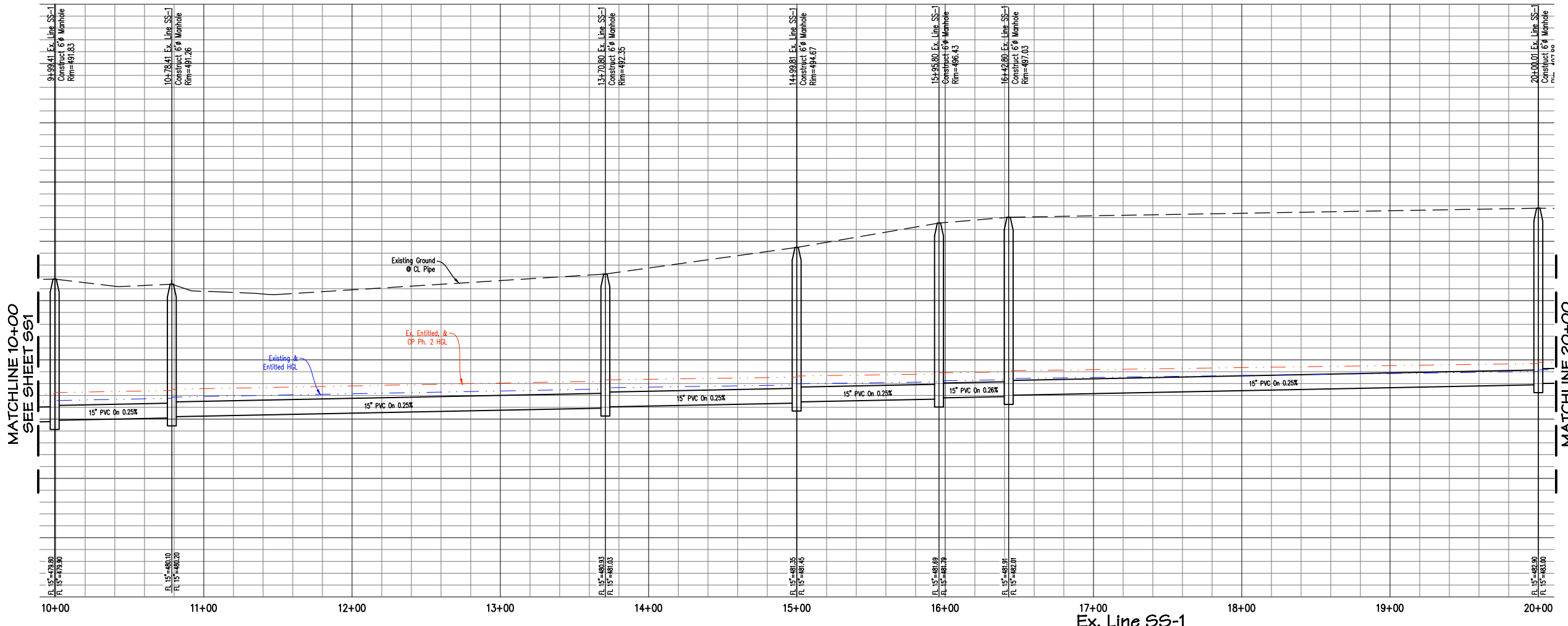


EXHIBIT 'A'



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LEGEND

—○— Existing Waste Water & Manhole

REV NO.	DATE	DESCRIPTION	BY

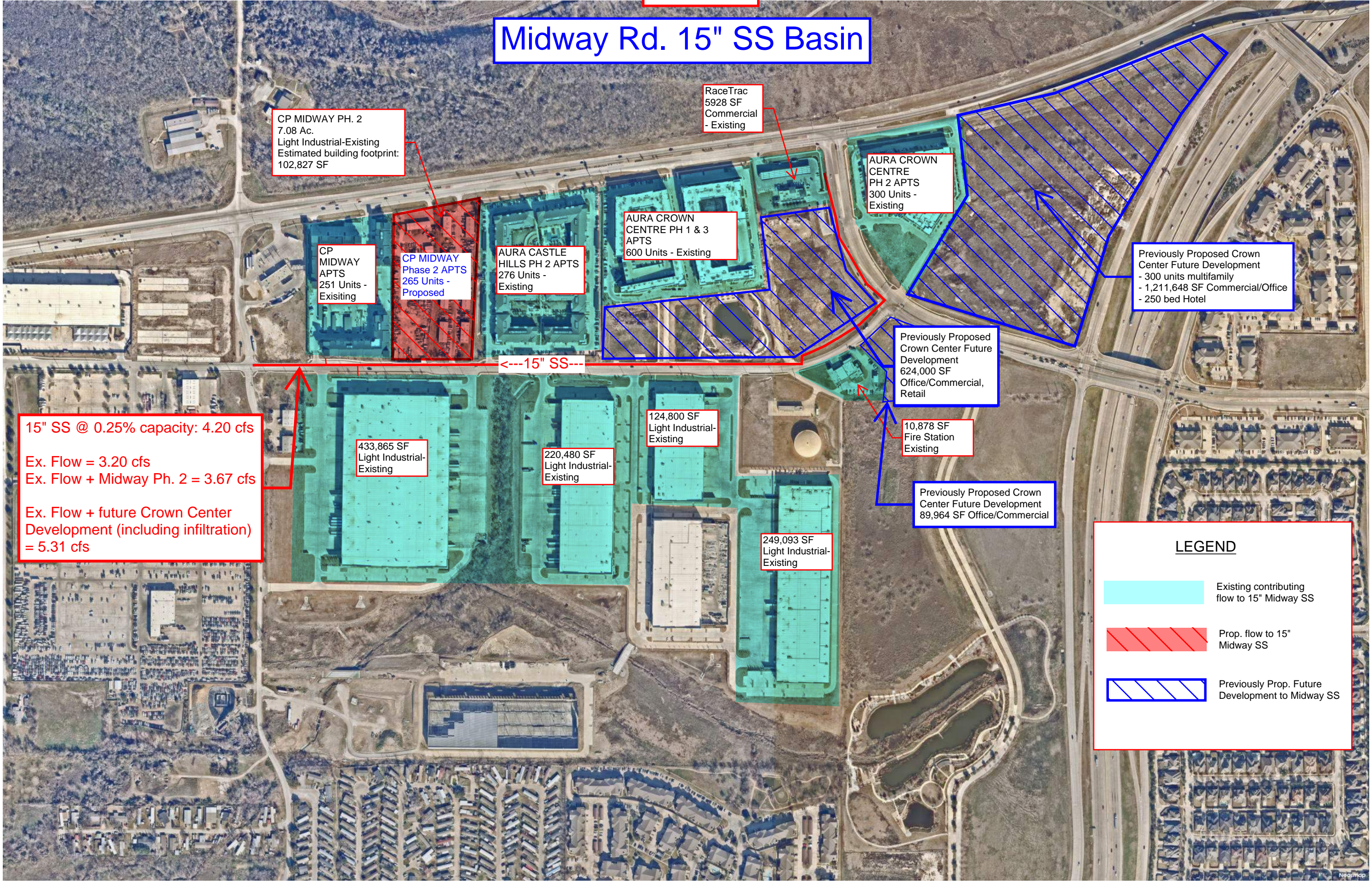
EXISTING SANITARY SEWER EXHIBIT
CP MIDWAY/121-2 MULTIFAMILY
LOT 1, BLOCK A
7.082 ACRES, ZONED: LI
1942 S.H. 121, CITY OF LEWISVILLE, TEXAS 75056

DEVELOPED BY:	CHAPARRAL PARTNERS, LP	ARCHITECT:	HEDK ARCHITECTS 4595 EXCEL PARKWAY ADDISON, TX 75001
PREPARED BY:	SPIARS ENGINEERING INC. 501 W. PRESIDENT GEORGE BUSH HWY., SUITE 200 RICHARDSON, TEXAS 75080 (972) 722-0077 TBPLS REGISTRATION NO. F-2121		
PH:	(214) 520-8870		

DESIGN	DRAWN	DATE	SCALE	CHECK	FILE	NO.
DJB	BLM	3/30/26	AS SHOWN	DJB	25-355	552

EXHIBIT 'B'

Midway Rd. 15" SS Basin



CP MIDWAY PH. 2
7.08 Ac.
Light Industrial-Existing
Estimated building footprint:
102,827 SF

RaceTrac
5928 SF
Commercial
- Existing

AURA CROWN
CENTRE
PH 2 APTS
300 Units -
Existing

CP
MIDWAY
APTS
251 Units -
Existing

CP MIDWAY
Phase 2 APTS
265 Units -
Proposed

AURA CASTLE
HILLS PH 2 APTS
276 Units -
Existing

AURA CROWN
CENTRE PH 1 & 3
APTS
600 Units - Existing

Previously Proposed Crown
Center Future Development
- 300 units multifamily
- 1,211,648 SF Commercial/Office
- 250 bed Hotel

Previously Proposed
Crown Center Future
Development
624,000 SF
Office/Commercial,
Retail

10,878 SF
Fire Station
Existing

Previously Proposed Crown
Center Future Development
89,964 SF Office/Commercial

15" SS @ 0.25% capacity: 4.20 cfs

Ex. Flow = 3.20 cfs
Ex. Flow + Midway Ph. 2 = 3.67 cfs

Ex. Flow + future Crown Center
Development (including infiltration)
= 5.31 cfs

433,865 SF
Light Industrial-
Existing

220,480 SF
Light Industrial-
Existing

124,800 SF
Light Industrial-
Existing

249,093 SF
Light Industrial-
Existing

LEGEND



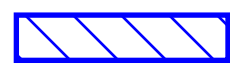
-  Existing contributing flow to 15" Midway SS
-  Prop. flow to 15" Midway SS
-  Previously Prop. Future Development to Midway SS

EXHIBIT 'C'

Table 1 - Existing Contributing Flows

Development	Land Use	DWU Classification	Lots/ Dwelling Units/Sq. Ft.	Population Per Unit	Population Served	Load (gpcd)	Average Flow (gpm)	Average Flow (cfs)	Peaking Factor (M)	Peak Flow (gpm)	Peak Flow (cfs)	Peak Flow (MGD)
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Table 2 - Future Contributing Flows

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Table 3 - Previously Proposed Future Flows

Development	Land Use	DWU Classification	Lots/ Dwelling Units/Sq. Ft.	Population Per Unit	Population Served	Load (gpcd)	Average Flow (gpm)	Average Flow (cfs)	Peaking Factor (M)	Peak Flow (gpm)	Peak Flow (cfs)	Peak Flow (MGD)
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Crown Center Retail	PD-MU (Commercial/Office)	MU-1 (Mixed Use, SF)	624,000	1/400 SF	1560	25	27.08	0.060	4	108.33	0.24	0.16
Crown Center Retail	PD-MU (Commercial/Office)	MU-1 (Mixed Use, SF)	89,964	1/400 SF	225	25	3.91	0.009	4	15.63	0.03	0.02
TOTAL FUTURE							174.74	0.39		698.96	1.56	1.01

Table 4 - Total Flow Summary

	Peak Flow (gpm)	Peak Flow (cfs)	Peak Flow (MGD)
Current Existing Flow	1438.1	3.20	2.07
Proposed Flow (Midway Ph. 2)	230.21	0.51	0.33
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Infiltration Flow	31.60	0.07	0.05
Total	2380.96	5.31	3.43

Table 5 - Existing 15" Pipe Capacity

Pipe Size (Inches)	Area (ft^2)	Perimeter (ft)	Pipe Slope (%)	Pipe Capacity (MGD)	Pipe Capacity (gpm)	Pipe Capacity (cfs)
15	1.23	3.93	0.25%	2.71	1884.58	4.20